Phipps Houses, Inc., Woodside, Long Island, N. Y.

AEROCRETE

LIGHTWEIGHT CONCRETE

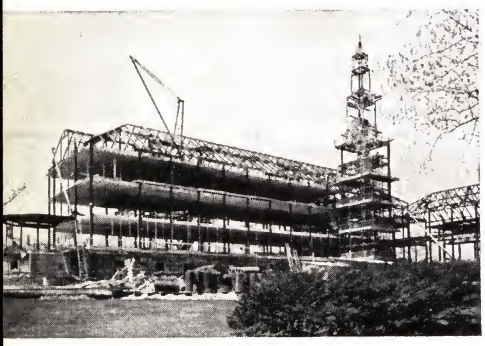
1929

1931

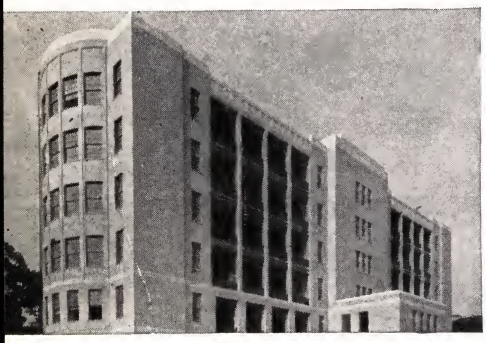
1933

1934

1932



1935



1936

1937

A FEW BUILDINGS IN ★ WHICH AEROCRETE WAS USED

REG. TRADE MARK

1929-1937

	JOB	ARCHITECT	TYPE OF CONSTRUCTION
1929	Top Addition, Office Bldg. Bethlehem Steel Company, Bethlehem, Pa.	Graham, Anderson, Probst & White, Chicago, Ill.	Structural Arches and Fireproofing, Floor Fill, in six top stories
1931	Majestic Apartments, Central Park West, New York City	Irwin Channing, New York City	Sound Insulating Partitions
1932	Dynamometer Building, U. S. Bureau of Standards, Washington, D. C.	U. S. Bureau of Standards	Reinforced Aerocrete Structural Roof, Partition Slabs
1933	Rockefeller Center, New York City	Reinhart & Hofmeister. Corbett, Harrison & McMurray. Hood & Fouilhoux. New York City	*N.B.C. Studios*: Partitions *Sunken Plaza*: Structural Arches and Fill
1934	Washington County Hospital, New Wing, Hagerstown, Maryland	Buckler & Fenhagen, Baltimore, Md.	Structural Arches and Fireproofing
1935	Miriam Osborne Home, New Wing, Rye, N. Y.	James Gamble Rogers, New York City	Long Span Floors, Floor Fill
1936	Children's Pavilion, Seaview Hospital, Staten Island, N. Y.	Adolph Martin, New York City	Long Span Floors, Floor Fill
1937	Federal Trade Commission Building, Washington, D. C.	Bennett, Parsons & Frost, Chicago, Ill.	Structural Arches, Floor Fill

AEROCRETE CORPORATION OF AMERICA
R.C.A. Building, Rockefeller Center
49 West 49th Street
NEW YORK, N. Y.

AEROCRETE

Lightweight Concrete

Aerocrete Block
Showing Air Cells Actual Size

WHY AEROCRETE FOR THE MODERN BUILDING

In the search for improved serviceability and economy, progressive engineers are paying an increasing amount of attention to the elimination of unnecessary weight or dead load. To this trend in the building industry, light weight concrete in general, and Aerocrete in particular, have been making an important contribution.

Aerocrete is a light weight concrete. Together with its companion material, "Gritcrete", it can be produced on the job to weigh from 50 to 108 lbs. per cu. ft. These weights compare with 144 lbs. per cubic foot for stone concrete. In buildings designed for men and women to live and work in, as distinct from those used for heavy loadings such as warehouses or industrial plants, the use of Aerocrete will afford economy of space or money, or both.

Foremost in the properties of Aerocrete is its high degree of resistance to the passage of sound. The even, cellular structure of Aerocrete not only accounts for its high resistance to sound, but makes it likewise an excellent insulator to heat and cold. Since Aerocrete is as indestructible as concrete, its thermal insulation will last as long as the building in which it is used. Aerocrete is likewise a superior fireproofing medium.

WHAT IS AEROCRETE

Aerocrete is simply a mixture of Portland Cement, properly graded sand and water. These ingredients are first proportioned to give the desired weight, and are then mixed at the job site in the standard type concrete mixer, no special equipment of any sort being necessary. At the time of mixing there is added our Aerocrete Admixture, which has the property of reacting with the alkaline constituents of the Portland Cement. In this reaction, a small percentage of the mixing water is broken down into its component gases, and these, as they are formed, cause the wet concrete to expand after placing by a controlled, predetermined amount.

The start of the expansion does not occur until fifteen or twenty minutes after the Aerocrete has been mixed, giving plenty of time in which to get the material in place. The rise then continues slowly for a period of from forty-five to sixty minutes. The timing and the amount of expansion is exact within close practical limits.

WHY IS AEROCRETE ECONOMICAL

The resulting economy is important. Depending on the desired weight, the expansion varies from 75 to 30 per cent of the original pouring height; the lighter the weight the greater the expansion. Therefore, due to the bulking action of the mass after placing, and to the natural workability of the wet Aerocrete, the cost of placing Aerocrete is consistently less on any production operation than that for ordinary concrete.

Aerocrete does not involve the use of special equipment. The usual type of concrete mixer, together with a bucket or platform hoist, and standard concrete buggies for placing, represent the usual construction outfit. If desired, the material can be delivered in ready-mixed concrete trucks, and the Compound added at the job site.

WHY DOES AEROCRETE HELP IN SOUNDPROOFING A BUILDING

Mention has been made that Aerocrete acts to retard the passage of sound. It has been widely used in many buildings for this reason and the excellent results obtained have been recorded in a number of tests as well as by the experience of the owners, architects and builders concerned. It

An Early Load Test on a Seven-foot Span of 4" Aerocrete Weighing 60 lbs. Per Cu. Ft., Showing Arch Supporting a Load of 900 lbs. Per. Sq. Ft.

An Early Load Test of Long Span Aerocrete Floor System. The Span is 29 Ft. and the Load Producing Failure was 330 lbs. Per Sq. Ft.

was selected for use by the National Broadcasting Company for the partitions of the Studios of Radio City in Rockefeller Center. As precast blocks for partitions and poured in place for structural floors and floor fill, Aerocrete is a preferred material to be used to obtain a more sound proof building. In addition to the above, and this is particularly true of office buildings and the like, Aerocrete is considerably easier to cut into if changes in the location of pipes or conduits are required. The resulting noise and inconvenience to adjoining tenants is thereby greatly lessened.

IS AEROCRETE FIREPROOF

Aerocrete has the same rating as stone concrete from the Rating Board of the Fire Underwriters; it is a fully fireproof material, as proven by a series of rigorous tests carried out under conditions designed to duplicate a severe fire in a restricted space. In such a test, for example, conducted for the Building Department of New York City by Columbia University, a thermo-couple or high temperature thermometer was placed only two inches away from the surface of the Aerocrete encasing a steel beam. The beam was exposed on three sides to the action of the fire, which was maintained at a temperature of over 1700° Fahrenheit for four hours. The temperature at the point described rose only from 47° to a maximum of 221°, while two inches away a roaring inferno of 1700° continued during the four hours mentioned.

DOES AEROCRETE RESIST THE PASSAGE OF HEAT AND COLD

Look at the photograph on the previous page showing the actual size and nature of the cells making up a block of Aerocrete. The reader will note that these cells consist of evenly distributed, closed voids. These air cells resist the passage of heat or cold. This is highly important in roof construction. Part or all of the expensive, impermanent, vegetable, insulating material may be eliminated with a consequent saving in cost. Such a saving may be a highly important factor in a factory, auditorium, or gymnasium where the roof covers a large area and represents a sizable proportion of the cost of the Building. There are numerous installations, both in the north where the severity of the winters have tested Aerocrete, and in the south where the summer sun is at a maximum, the owners or occupants of which will be pleased to attest to the excellence of Aerocrete as an insulator to heat and cold.

COEFFICIENTS OF HEAT TRANSMISSION

Material	Wgt. per cu. ft., lbs.	C*	Equivalent thickness, in.
Corkboard	10	0.30	1.00**
Aerocrete	50	1.44	4.80)
Aerocrete	60	1.80	6.00)
Aerocrete	70	2.18	7.27) †
Aerocrete	80	2.56	8.53)
Brickwork (dry)	132	4.00	13.33)
Concrete	140	8.30	27.70) ††
Cinder concrete	110	5.20	17.35†
Gypsum	...	2.98	9.93‡

*C—Coefficient of heat transmission in B.t.u. per hour, per square foot, per inch thickness, per degree difference Fahrenheit.

**Bureau of Standards. ††Willard, Light & Harding.

†Peebles, Armour Institute. ‡A. S. R. E., Committee Report.

Four Hour Fire Test on Aerocrete in 1927, For New York Building Department.

AEROCRETE STRUCTURAL FLOORS FOR MODERN FIREPROOF CONSTRUCTION

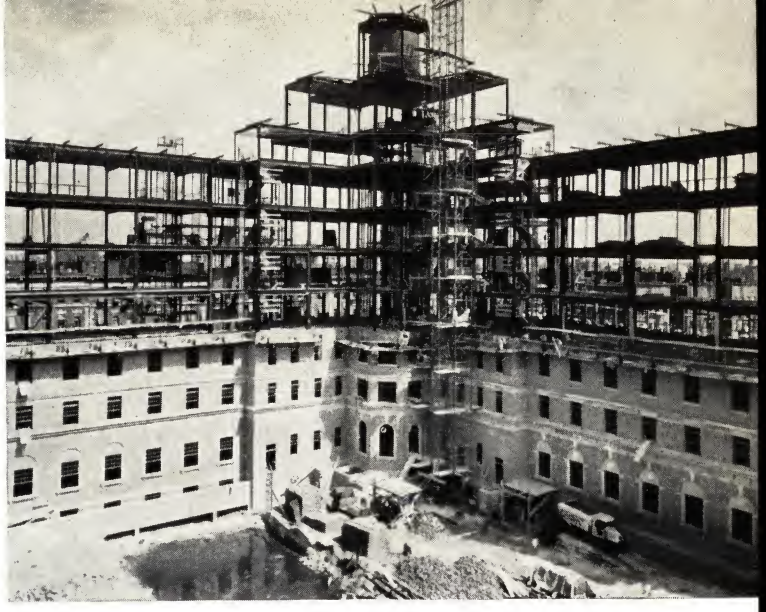
In considering the merits of different structural systems for his new project, the designing architect or engineer will pay particular attention to certain basic qualifications. The type of floor selected should certainly be one which has proven its usefulness over a period of years, with a full record of successful installations. It should enable the builder to proceed with the work with due speed and proper economy. It should be one which uses readily obtainable materials and equipment, under conditions that will not produce delays or labor difficulties as the job progresses. The system and the material should be properly adjustable to take care of the various conditions of span, loading, and use, that normally occur even in the simplest type of structure. It should not occupy an undue percentage of the cubical contents of the building. It should be highly soundproof, free from any tendency to vibrate, able to take occasional concentrated overloadings, and it should be of such a nature that minor alterations, often required in later occupancy, can be made without a complete reconstruction of the floor slab or structural panel.

AEROCRETE FLOORS GIVE THESE ADVANTAGES

Aerocrete floor systems have been installed in this country since 1928. The first major structural installation was that made in the top addition to the office building of the Bethlehem Steel Company. The use of Aerocrete in this

project enabled the architects to increase the height of the building by a much needed six stories instead of the four which was all that could have been obtained otherwise. Since that time, and in spite of the severe depression in the building industry, the use of Aerocrete floor systems has steadily increased in number so that today we can point to buildings of widely varying size and purpose such as the largest new government office building, the structural roof of a new southern pulp and paper mill, a building for the Bureau of Standards or the New Chronic Hospital for the City of New York, to demonstrate the range of structural applications for which Aerocrete is being used.

The following paragraphs, cuts and tables, cover several types of Aerocrete Floor Systems. It should be noted, however that in many buildings, two or even more of the systems may be combined, each used in those areas where its usefulness is most suited. It is this property of extreme flexibility to take care of the many conditions that arise in the practical design of structures that accounts for much of the popularity that Aerocrete is currently enjoying.



Progress Photograph of Long Span Floor System Installed in Harlem Hospital, New York City. Sloan & Robertson, Architects

AEROCRETE "L. S." FLOOR CONSTRUCTION

The design of the Aerocrete "L. S." Floor utilizes the outstanding properties of Aerocrete to excellent advantage to give a floor of exceptional rigidity, yet of shallow depth, combined with speed and economy of erection.

The construction consists of structural I-beams spaced 3 to 5 ft. apart which are erected as part of the structural steel work. The depth of these beams will vary from 4 to 8″, depending upon the span and load. Flat form-work is hung directly from the I-beams, and on these forms the Aerocrete is poured so as to fireproof and encase the beams thoroughly in a light, fireproof, soundproof slab of Aerocrete.

LIGHT, RIGID, SOUNDPROOF

Owing to the lightness of Aerocrete, it is possible to install a slab of sufficient thickness to encase the beams without increasing the dead load as compared to competing types of construction. Owing to the plastic consistency of Aerocrete, the material flows entirely around the haunches and web of each beam so as greatly to stiffen these members. As measured by the permissible deflection of 1/360 of the span, the beams surrounded by Aerocrete show an additional stiffness of better than 100%. Due to the cellular nature of the material, the floor system is highly insulating to sound.

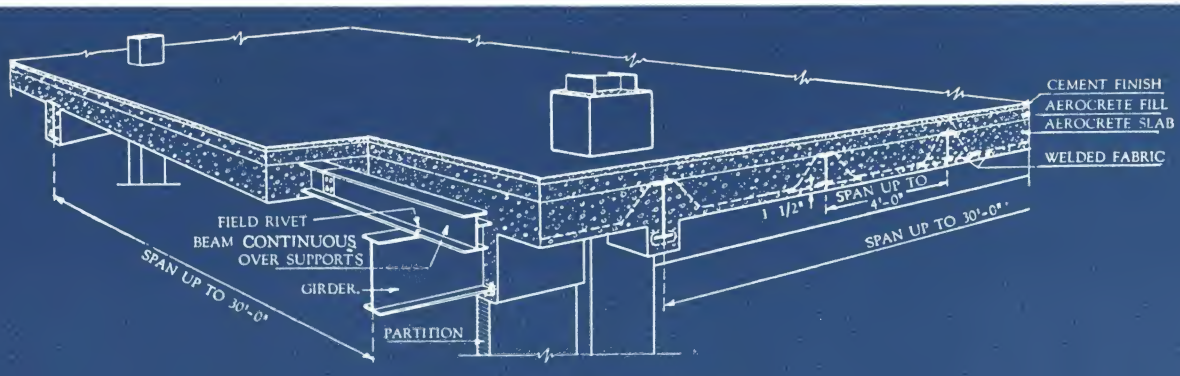
SIMPLE IN DESIGN AND INSTALLATION

One of the main advantages of the system is its simplicity. Since the stresses are taken in the steel, the Aerocrete only carries over the short spans between the beams. It is therefore possible to strip the forms safely in from two to three days of normal curing weather. Posting and shoring is of course not needed as the forms are hung from the steel. In the erection of multi-storied buildings it should be noted that the beams for the floor give a working deck for the erection of the steel skeleton, the result being a lowered unit price on the cost of steel erection.

In spite of the superior features of the floor, its cost compares favorably to that of other systems giving a shallow depth floor with flat ceiling. In most localities, the weight of the Aerocrete, using sand as an aggregate, will be 70 lbs. per cu. ft. but where good steam hard coal cinders are available, an Aerocrete weighing 60 lbs. per cu. ft. may be specified.

TO SUM UP

Simplicity and flexibility of design are properties of the "L. S" system. A floor can be designed for such loads and spans as may occur in buildings intended for human occupancy, within the widest practical limits. In addition, the designing engineer can lay out and detail an "L. S." floor easily and rapidly without unnecessary study and costly detailing. Openings of one sort or another are easily provided for, and job or tenant changes can be effected with little trouble, as the Aerocrete slab can be cut into without disturbing the structural strength of the floor.



TYPICAL FLOOR SECTION

LONG SPAN STEEL-AEROCRETE FLOOR CONSTRUCTION

AEROCRETE "R. S." FLOOR CONSTRUCTION

The Aerocrete "R. S." Floor Construction consists of a combination of Aerocrete with stone concrete and steel, to form a composite reinforced concrete floor with properties of great stiffness and rigidity, minimum thickness, absolute fireproofness, and high sound insulation. The underside of the slab is flat, ready to receive the plaster direct.

HOW THE "R. S." FLOOR IS MADE UP

For simplicity, the construction may be considered to consist of three parts. First, there is a flat slab of Aerocrete of a density of 70 lbs. per cu. ft. Secondly, embedded in the Aerocrete is a steel member, the bottom flange of which is 1″ up in the Aerocrete. This steel member consists of a heavy tension member connected by an open web system to a lighter top member, this last extending up above the Aerocrete. Thirdly, this top member is encased in a slab of stone concrete 2 to 2½″ thick, the steel and the concrete together taking the compressive stresses, as will be described in what follows.

FORMS ARE HUNG FROM JOISTS

As a practical construction expedient, the steel reinforcement is prefabricated in the form of sturdy reinforced trusses, ranging in weight from 5¾ to 29½ lbs. per lin. ft., depending upon span and load. From these trusses are hung the forms for receiving the Aerocrete. As a result, these forms are of the most economical type, consisting of flat sheathing lumber laid on stringers, and the need for posting, shoring or centering is eliminated. As the top member of the truss is designed to take the stresses resulting from the combined weight of the Aerocrete and the concrete, the forms can be stripped in from three to four days.

FURTHER DETAILS OF "R. S." FLOOR

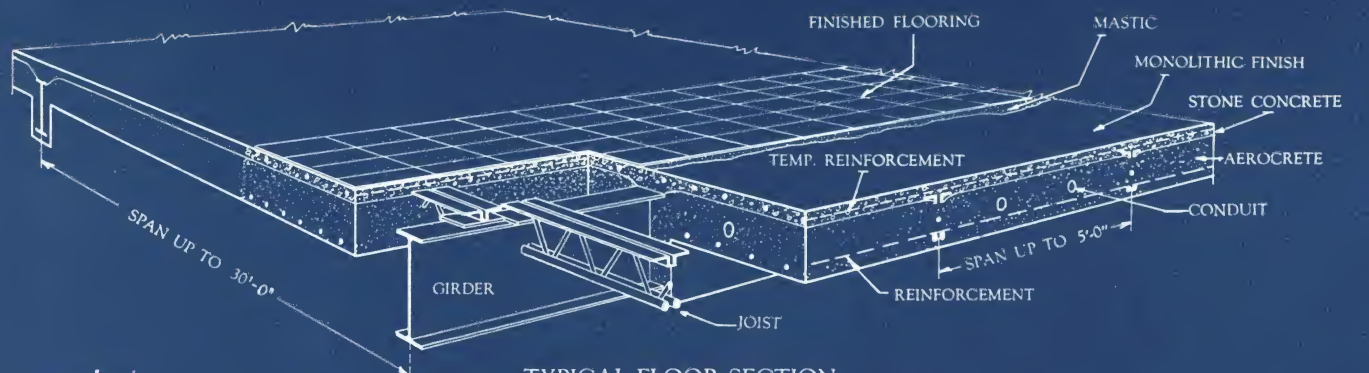
The trusses are spaced from 3 to 5 ft. apart, the wider spacing being the more economical where conditions permit. After the forms have been placed and the Aerocrete is poured, the stone concrete is placed within 24 to 48 hours. The concrete may be finished monolithically to receive, or to act as, the finished flooring.

The finished construction provides a smooth underside ready for plastering. This underside consists of a continuous flat surface of Aerocrete to which an excellent bond with plaster is obtained.

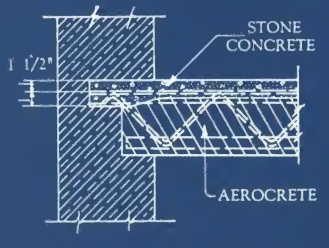
Using an open truss in the construction enables conduits, and in the larger sizes, pipes as well, to be run in any direction through the open webs. In this way the necessity for a floor fill is obviated, with a consequent saving in cost, in dead load, and in floor thickness.

SUMMARY

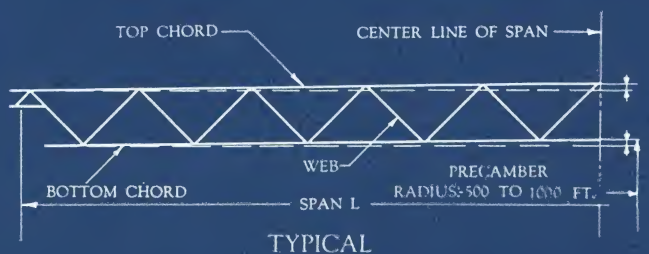
To sum up, this floor system consists of a stone concrete slab reinforced by a steel member, prefabricated to carry the forms and the dead load, and an Aerocrete filler. Compressive and tensile stresses are taken in the concrete and steel. Shear stresses are taken by the steel and the Aerocrete. Flat forms are hung from the steel so that the erection is speedy, easy and economical. Conduits can be run through the trusses in any direction. A permanent economical plaster finish is insured, due to the flat continuous underside of Aerocrete. The stone concrete may be finished monolithically. The resulting floor is absolutely fireproof and highly soundproof. The nature of the design permits of extreme flexibility in laying out the system in practice. Owing to the special reinforcing of the trusses, an exceptionally stiff and rigid floor results.



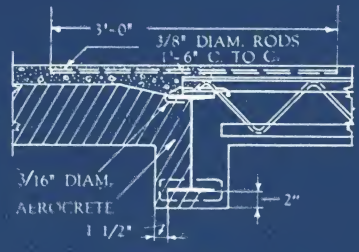
TYPICAL FLOOR SECTION



TYPICAL SUPPORT ON WALL



TYPICAL JOIST



TYPICAL SUPPORT ON GIRDER

AEROCRETE "RS" FLOOR CONSTRUCTION

AEROCRETE "RS" FLOOR CONSTRUCTION

SAFE APPLIED LOADS PER SQ. FT. D = 6½" THICK SLAB H = 4¼" WEIGHT = 49 LB. PER SQ. FT.

SPAN IN FT.	10′-0″					10′-6″					11′-0″					11′-6″					12′-0″				
SPACING IN IN.	36	39	42	45	48	36	39	42	45	48	36	39	42	45	48	36	39	42	45	48	36	39	42	45	48
JOISTS 4-1	104-A	91-A	79-A	70-A	61-A	88-A	76-A	66-A	57-A	49-A	76-A	64-A	54-A	46-A	39-A	62-A	52-A	44-A	36-A		51-A	43-A	34-A		
" 4-2	131-A	118-A	103-A	89-A	79-A	112-A	99-A	87-A	76-A	65-A	94-A	85-A	73-A	64-A	56-A	83-A	72-A	62-A	53-A	45-B	70-A	61-A	51-A	43-B	36-B
" 4-3	157-A	139-A	125-A	113-A	103-A	136-A	120-A	107-A	96-A	87-A	118-A	105-A	92-A	82-A	73-A	103-A	90-A	78-A	70-A	62-B	89-A	78-A	67-A	59-B	51-B
" 4-4		170-A	153-A	139-A	128-A	166-A	148-A	133-A	120-A	108-A	146-A	129-A	116-A	104-A	93-A	128-A	114-A	101-A	90-B	79-B	112-A	99-A	87-B	77-B	68-B
" 4-5			180-B	163-B	148-B		174-B	156-B	141-B	128-B		153-B	137-B	124-B	112-B	151-B	135-B	120-B	108-B	97-B	134-B	119-B	105-B	94-B	84-B
" 4-6										151-B			161-B	146-B	133-B		157-B	141-B	128-B	116-B	156-B	139-B	124-B	112-B	101-B
" 4-7															153-C				148-C	135-C		162-C	146-C	131-C	119-C
" 4-8																			158-C	147-C			158-C	148-C	137-C

SEE MARKING NOTES

SPAN IN FT.	12′-6″					13′-0″					13′-6″					14′-0″					14′-6″					15′-0″				
SPACING IN IN.	36	39	42	45	48	36	39	42	45	48	36	39	42	45	48	36	39	42	45	48	36	39	42	45	48	36	39	42	45	48
JOISTS 4-2	60-A	50-A	42-B	35-B		50-A	42-B	34-B			42-B	34-B				34-B														
" 4-3	78-A	66-A	56-B	50-B	43-C	66-A	57-B	49-B	41-C	34-C	56-B	49-B	40-C	33-C		49-B	41-C	34-C			41-C	34-C				34-C				
" 4-4	99-A	86-B	75-B	66-B	58-C	84-B	75-B	65-B	56-C	48-C	75-B	65-B	55-C	47-C	40-D	65-B	55-C	46-C	39-D	32-D	56-C	47-C	39-D	32-D		48-C	39-D	32-D		
" 4-5	118-B	104-B	92-B	82-B	72-C	104-B	92-B	81-B	71-C	62-C	92-B	80-B	70-C	61-C	53-D	80-B	70-C	60-C	52-D	44-D	71-C	61-C	51-D	44-D	37-D	62-C	52-D	44-D	37-D	30-E
" 4-6	139-B	124-B	110-B	99-B	88-C	124-B	110-B	97-B	87-C	77-C	110-B	97-B	86-C	76-C	67-D	97-B	86-C	75-C	66-D	57-D	86-C	76-C	65-D	56-D	49-D	76-C	65-D	55-D	48-D	42-E
" 4-7	162-C	144-C	129-C	116-C	105-C	144-C	129-C	114-C	103-C	92-C	129-C	114-C	102-C	90-D	81-D	114-C	102-C	90-D	80-D	70-D	102-C	90-D	80-D	70-D	61-D	91-C	79-D	70-D	61-D	54-E
" 4-8		161-C	151-C	137-C	122-C	169-C	148-C	133-C	120-C	107-C	146-C	132-C	118-C	106-D	95-D	132-C	119-C	106-D	94-D	84-D	120-C	107-D	94-D	84-D	74-D	108-D	96-D	84-D	74-D	65-E

SEE MARKING NOTES

WORKING STRESSES
fs —18,000 lb. per sq. in. (Max.)
f′s—20,000 lb. per sq. in. (Max.)
fc — 650 lb. per sq. in. (Max.)
n — 15
Shear 17 lb. per sq. in. from applied load. Shear from wt. of slab taken by the joists.

MARKING 4-5D
4 Nominal depth of joist.
-5 Bottom chord and web.
D Top chord.
4-5 as found in left margin.
D as found to right of load.

SAFE APPLIED LOADS PER SQ. FT. D = 7½" THICK SLAB H = 5¼" WEIGHT = 55 LB. PER SQ. FT.

SPAN IN FT.	13′-0″						13′-6″						14′-0″						14′-6″						15′-0″					
SPACING IN IN.	36	39	42	45	48	51	36	39	42	45	48	51	36	39	42	45	48	51	36	39	42	45	48	51	36	39	42	45	48	51
JOISTS 5-5	136-B	121-B	107-B	95-B	80-B	68-C	121-B	107-B	94-B	84-B	74-C	63-C	107-B	95-B	83-B	73-C	64-C	56-D	96-B	84-B	73-C	64-C	55-D	47-D	84-B	74-C	64-C	55-D	47-D	40-D
" 5-6	160-B	143-B	128-B	115-B	103-B	92-C	144-B	129-B	114-B	102-B	91-C	81-C	130-B	115-B	101-B	90-C	80-C	71-D	117-B	103-B	90-C	79-C	70-D	62-D	104-B	91-C	79-C	69-D	61-D	53-D
" 5-7			150-C	134-C	121-C	109-C		150-C	134-C	120-C	109-C	98-C	151-C	135-C	120-C	107-C	96-C	86-D	136-C	121-C	107-C	96-C	85-D	75-D	122-C	108-C	96-C	85-D	75-D	66-D
" 5-8				152-C	141-C	130-C			154-C	139-C	126-C	114-C		155-C	138-C	124-C	112-C	101-D	156-C	139-C	124-C	112-C	100-D	89-D	141-C	126-C	112-C	100-D	89-D	79-D
" 5-9					162-D	147-D				160-D	146-D	133-D			159-D	145-D	131-D	117-D		160-D	144-D	130-D	117-D	105-D	162-D	145-D	130-D	117-D	105-D	94-D

SPAN IN FT.	15′-6″						16′-0″						16′-6″						17′-0″						17′-6″					
SPACING IN IN.	36	39	42	45	48	51	36	39	42	45	48	51	36	39	42	45	48	51	36	39	42	45	48	51	36	39	42	45	48	51
JOISTS 5-5	75-C	65-C	55-D	47-D	39-D		66-C	56-D	47-D	40-D			58-D	48-D	40-D				51-D	42-D					44-D					
" 5-6	92-C	80-C	69-D	60-D	52-D	45-E	82-C	71-D	61-D	52-D	45-E	38-E	73-D	63-D	53-D	45-E	38-E		65-D	55-D	46-E	39-E			58-D	48-E	40-E			
" 5-7	110-C	97-C	85-D	75-D	66-D	58-E	99-C	86-D	76-D	66-D	58-E	50-E	89-D	77-D	67-D	58-E	50-E	43-E	81-D	69-D	59-E	50-E	43-E	37-F	72-D	62-E	52-E	43-E	37-F	
" 5-8	127-C	113-C	101-D	89-D	79-D	70-E	115-C	101-D	90-D	79-D	71-E	62-E	104-D	91-D	80-D	71-E	63-E	54-E	94-D	82-D	72-E	63-E	55-E	46-F	85-D	73-E	64-E	55-E	47-F	40-F
" 5-9	148-D	132-D	117-D	105-D	94-D	84-E	135-D	120-D	105-D	94-D	84-E	75-E	123-D	109-D	94-D	84-E	75-E	67-F	112-D	99-D	85-E	75-E	67-F	60-F	102-D	89-E	77-E	67-F	60-F	53-F

SAFE APPLIED LOADS PER SQ. FT. D = 8½" THICK SLAB H = 6¼" WEIGHT = 60 LB. PER SQ. FT.

SPAN IN FT.	15′-0″							15′-6″							16′-0″							16′-6″						
SPACING IN IN.	36	39	42	45	48	51	54	36	39	42	45	48	51	54	36	39	42	45	48	51	54	36	39	42	45	48	51	54
JOISTS 6- 7	153-C	136-C	115-C	98-C	87-C	79-D	68-D	138-C	121-C	108-C	97-C	82-D	72-D	62-D	125-C	110-C	97-C	87-D	77-D	68-D	60-E	113-C	99-C	87-D	77-D	68-D	60-E	52-E
" 6- 8		158-C	142-C	128-C	115-C	102-D	93-D	157-C	143-C	127-C	115-C	102-D	92-D	83-D	145-C	129-C	115-C	103-D	92-D	82-D	74-E	133-C	118-C	104-D	93-D	82-D	73-E	66-E
" 6- 9			162-D	157-D	133-D	120-D	108-D			148-D	133-D	120-D	108-D	99-D		149-D	134-D	120-D	108-D	98-D	88-E	152-D	136-D	122-D	109-D	98-D	88-E	79-E
" 6-10					174-E	160-E	146-E				174-E	158-E	145-E	133-E			174-E	160-E	144-E	132-E	120-E		176-E	161-E	145-E	132-E	120-E	109-E

SPAN IN FT.	17′-0″							17′-6″							18′-0″							18′-6″						
SPACING IN IN.	36	39	42	45	48	51	54	36	39	42	45	48	51	54	36	39	42	45	48	51	54	36	39	42	45	48	51	54
JOISTS 6- 7	103-C	89-D	78-D	69-D	60-E	52-E	45-E	93-D	80-D	70-D	61-E	52-E	45-E	39-F	84-D	72-D	62-E	53-E	45-E	39-F		76-D	64-E	55-E	46-E	39-F		
" 6- 8	121-C	107-D	94-D	83-D	73-E	65-E	58-E	110-D	96-D	85-D	74-E	65-E	58-E	51-F	100-D	87-D	76-E	66-E	58-E	51-F	44-F	91-D	79-E	68-E	59-E	51-F	44-F	37-G
" 6- 9	140-D	124-D	110-D	98-D	88-E	79-E	70-E	128-D	113-D	100-D	89-E	79-E	70-E	62-F	116-D	102-D	90-E	80-E	70-E	62-F	55-F	106-D	93-E	82-E	72-E	63-F	55-F	48-G
" 6-10		163-E	146-E	132-E	120-E	109-E	99-F	169-E	150-E	134-E	121-E	109-E	99-F	89-F	156-E	138-E	123-E	110-E	99-F	89-F	80-F	143-E	126-E	112-E	100-F	89-F	80-F	72-G

SPAN IN FT.	19′-0″							19′-6″							20′-0″							
SPACING IN IN.	36	39	42	45	48	51	54	36	39	42	45	48	51	54	36	39	42	45	48	51	54	
JOISTS 6- 7	68-D	57-E	48-E	40-F				61-E	51-E	42-F					54-E	46-F						
" 6- 8	82-E	71-E	60-E	52-F	45-F	37-G		75-E	64-E	53-F	46-F	39-G			68-E	57-F	47-F	40-G				
" 6- 9	97-E	85-E	74-E	64-F	56-F	48-G	42-G	89-E	77-E	67-F	57-F	49-G	42-G	36-H	82-E	70-F	60-F	50-G	43-G	36-H		
" 6-10	131-E	115-E	102-F	91-F	81-F	72-G	65-G	121-E	107-F	94-F	82-F	73-G	65-G	58-H	112-F	99-F	87-F	76-G	66-G	58-H	52-H	

1.) In figuring any concentrated applied loadings, max. allowable reactions may be taken as those reactions which are produced by the uniform loadings shown in this table for the spacings given.

2.) Calculations are based on forms hung from joists (which are designed to take the dead load of slab).

3.) All joists shall be cambered as noted.

AEROCRETE "RS" FLOOR CONSTRUCTION

SAFE APPLIED LOADS PER SQ. FT. D = 9½" THICK SLAB H = 7¼" WEIGHT = 66 LB. PER SQ. FT.

SPAN IN FT.	17'-6"								18'-0"								18'-6"								19'-0"							
SPACING IN IN.	36	39	42	45	48	51	54	57	36	39	42	45	48	51	54	57	36	39	42	45	48	51	54	57	36	39	42	45	48	51	54	57
JOISTS 7- 9	154-D	137-D	122-D	109-D	98-E	88-E	78-E	71-F	141-D	125-D	111-D	99-E	88-E	78-E	70-F	63-F	130-D	114-D	101-E	89-E	79-E	70-F	62-F	55-G	120-D	104-E	91-E	80-E	71-F	62-F	55-G	47-G
" 7-10		178-E	161-E	146-E	132-E	120-E	109-F	99-F		165-E	148-E	133-E	121-E	109-F	99-F	89-F	170-E	151-E	136-E	122-E	110-F	99-F	89-F	80-G	158-E	140-E	125-E	112-F	100-F	90-F	81-G	72-G
" 7-11				184-F	168-F	154-F	141-F	129-F			184-F	169-F	155-F	141-F	129-F	118-G			172-F	156-F	142-F	129-F	118-G	108-G		165-F	160-F	144-F	131-F	118-G	108-G	99-G

SPAN IN FT.	19'-6"								20'-0"								20'-6"								21'-0"							
SPACING IN IN.	36	39	42	45	48	51	54	57	36	39	42	45	48	51	54	57	36	39	42	45	48	51	54	57	36	39	42	45	48	51	54	57
JOISTS 7- 9	110-D	95-E	83-E	72-F	63-F	55-G	48-G	40-G	100-E	86-E	75-E	65-F	56-F	48-G	42-G		91-E	78-E	67-F	58-F	50-G				83-E	71-F	60-F	51-G				
" 7-10	146-E	129-E	115-F	102-F	91-F	8'-G	73-G	65-G	136-E	119-F	105-F	93-F	82-G	73-G	65-G	58-H	125-F	109-F	96-F	84-G	74-G	66-G	58-H	51-H	115-F	100-F	88-F	77-G	67-G	59-H	51-H	
" 7-11		156-F	148-F	133-F	120-G	108-G	98-G	90-H	157-F	153-F	137-F	123-G	110-G	99-G	90-H	82-H	149-F	142-F	126-G	113-G	101-G	91-H	82-H	74-H	142-F	132-G	116-G	103-G	92-H	83-H	74-H	66-J

SPAN IN FT.	21'-6"								22'-0"								22'-6"								23'-0"							
SPACING IN IN.	36	39	42	45	48	51	54	57	36	39	42	45	48	51	54	57	36	39	42	45	48	51	54	57	36	39	42	45	48	51	54	57
JOISTS 7- 9	75-F	64-F	54-G						69-F	57-F	48-G						63-F	51-G							57-F	45-G						
" 7-10	106-F	92-F	80-G	70-G	61-H				98-F	84-G	73-G	63-H	55-H				90-G	77-G	66-G	56-H	49-H				83-G	70-G	60-H	50-H				
" 7-11	139-G	122-G	107-G	95-H	84-H	75-H	66-J	59-J	129-G	113-G	99-H	87-H	77-H	67-J	60-J		120-G	104-H	91-H	80-H	70-J	60-J	54-J		112-H	96-H	84-H	73-J	64-J	54-J		

SAFE APPLIED LOADS PER SQ. FT. D = 10½" THICK SLAB H = 8¼" WEIGHT = 75 LB. PER SQ. FT.

SPAN IN FT.	20'-0"					20'-6"					21'-0"					21'-6"					22'-0"					22'-6"				
SPACING IN IN.	36	42	48	54	60	36	42	48	54	60	36	42	48	54	60	36	42	48	54	60	36	42	48	54	60	36	42	48	54	60
JOISTS 8-10	154-E	117-F	92-G	74-G	57-H	141-E	107-F	84-G	66-H	50-H	130-F	99-F	76-G	59-H	42-J	120-F	91-G	69-H	53-H		111-F	83-G	62-H	46-J		102-F	75-G	55-H		
" 8-11		153-F	125-G	101-H	83-H	180-F	141-F	115-G	93-H	75-H	167-F	131-G	104-H	85-H	68-J	156-F	121-G	97-H	77-H	61-J	145-G	112-G	88-H	69-J	54-J	135-G	104-H	81-H	63-J	48-J
" 8-12			159-H	132-H	112-H		176-G	146-H	122-H	102-J		166-H	136-H	112-H	93-J		156-H	126-H	103-J	85-J			146-H	116-H	95-J	77-J	169-G	134-H	107-J	87-J	70-J

SPAN IN FT.	23'-0"					23'-6"					24'-0"					24'-6"					25'-0"				25'-6"				26'-0"			
SPACING IN IN.	36	42	48	54	60	36	42	48	54	60	36	42	48	54	60	36	42	48	54	60	36	42	48	54	36	42	48	36	42	48		
JOISTS 8-10	94-G	68-H	50-H			86-G	62-H	46-J			80-G	56-H				73-H	50-H				67-H	45-J			61-H			55-H				
" 8-11	125-G	96-H	74-J	57-J		116-H	88-H	67-J	50-J		108-H	81-H	61-J			100-H	74-J	55-J			93-H	67-J			86-H	62-J		79-J	57-J			
" 8-12	159-H	124-H	99-J	80-J	63-J	149-H	115-J	91-J	73-J	57-K	139-H	107-J	84-J	66-J	51-K	130-H	100-J	78-J	60-K		121-J	93-J	71-J	54-K	113-J	86-J	65-K	106-J	79-J	59-K		

SAFE APPLIED LOADS PER SQ. FT. D = 11½" THICK SLAB H = 9¼" WEIGHT = 82 LB. PER SQ. FT.

SPAN IN FT.	23'-0"					23'-6"					24'-0"					24'-6"					25'-0"					25'-6"				
SPACING IN IN.	36	42	48	54	60	36	42	48	54	60	36	42	48	54	60	36	42	48	54	60	36	42	48	54	60	36	42	48	54	60		
JOISTS 9-11	146-G	113-H	88-H	69-J	53-J	136-G	105-H	81-J	62-J	47-J	127-G	97-H	74-J	56-J		118-H	89-H	67-J	50-J		109-H	82-J	61-J	44-J		102-H	76-J	55-J				
" 9-12	184-H	148-H	118-J	95-J	77-J	173-H	139-H	108-J	87-J	70-J	162-H	130-J	99-J	80-J	63-K	152-H	122-J	92-J	73-J	57-K	143-J	114-J	85-J	66-K		134-J	106-J	78-J	60-K			
" 9-13		170-J	149-J	124-J	96-J		170-J	139-J	114-J	91-K		159-J	130-J	106-J	85-K		150-J	121-J	98-K	79-L	167-J	141-J	112-J	90-K	72-L	161-J	132-J	104-K	83-L	66-L		

SPAN IN FT.	26'-0"					26'-6"					27'-0"					27'-6"					28'-0"				28'-6"				29'-0"			
SPACING IN IN.	36	42	48	54	60	36	42	48	54	60	36	42	48	54	60	36	42	48	54	60	36	42	48	54	36	42	48	36	42	48		
JOISTS 9-11	95-H	70-J	49-J			88-J	64-J	44-J			81-J	58-J				75-J	52-J				70-J	47-J			65-J			60-J				
" 9-12	126-J	98-J	72-J	55-K		118-J	91-J	66-K			110-J	84-J	61-K			103-J	77-K	55-K			96-J	71-K			90-J	66-K		84-K	61-K			
" 9-13	154-J	123-J	97-K	77-L	60-L	148-J	115-K	90-L	71-L		139-J	107-K	83-L	65-L		131-J	100-K	77-L	55-L		123-K	93-L	71-L		116-K	87-L	66-L	109-K	81-L	59-L		

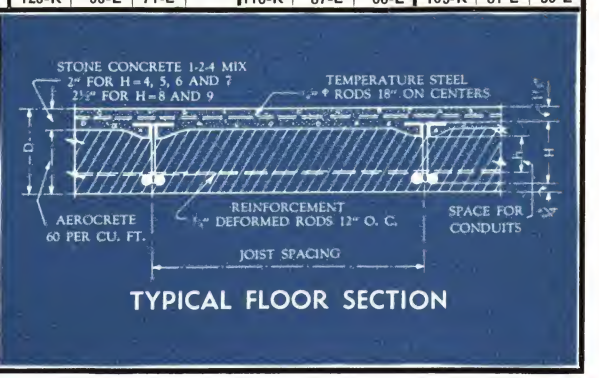
DIMENSIONS AND PROPERTIES OF "RS" JOISTS

Joists	Wt.	h	Joists	Wt.	h	Joists	Wt.	h	Joists	Wt.	h	Joists	Wt.	h	Joists	Wt.	h
4-1A	5.8	2¼	4-6E	11.5	1⅝	5-7F	12.8	2⅝	6-9D	13.7	3¾	7-11F	19.4	4¼	9-11G	20.0	5¾
4-2A	6.3	2⅛	4-7C	10.8	1⅝	5-8C	11.9	2½	6-9E	14.4	3½	7-11G	20.0	3¾	9-11H	20.9	6¼
4-2B	6.7	2⅛	4-7D	11.6	1⅞	5-8D	12.6	2¾	6-9F	15.0	3½	7-11H	20.9	4¼	9-11J	22.7	5¾
4-3A	6.8	2⅛	4-7E	12.2	1⅝	5-8E	13.3	2½	6-9G	15.6	3	7-11J	22.7	3¾	9-12G	22.5	5⅝
4-3B	7.3	2⅛	4-8C	11.9	1½	5-8F	13.9	2½	6-9H	16.5	3½	8-10E	16.5	5⅜	9-12H	23.4	6⅛
4-3C	7.7	1⅞	4-8D	12.6	1¾	5-9D	13.7	2¾	6-10E	16.5	3⅜	8-10F	17.1	5⅜	9-12J	25.2	5⅝
4-4A	7.7	2	4-8E	13.3	1½	5-9E	14.4	2½	6-10F	17.1	3⅜	8-10G	17.7	4⅞	9-12K	26.0	5⅛
4-4B	8.1	2	5-5B	8.8	3	5-9F	15.0	2½	6-10G	17.7	2⅞	8-10H	18.6	5⅜	9-13H	25.6	6
4-4C	8.5	1¾	5-5C	9.2	2¾	6-7C	10.8	3⅝	6-10H	18.6	3⅜	8-11F	19.4	5¼	9-13J	27.5	5½
4-4D	9.2	2	5-5D	9.9	3	6-7D	11.6	3⅞	7-9D	13.7	4¾	8-11G	20.0	4¾	9-13K	28.3	5
4-5B	8.8	2	5-6B	9.7	2⅞	6-7E	12.2	3⅝	7-9E	14.4	4½	8-11H	20.9	5¼	9-13L	29.1	5
4-5C	9.2	1¾	5-6C	10.1	2⅝	6-7F	12.8	3⅝	7-9F	15.0	4½	8-11J	22.7	4¾			
4-5D	9.9	2	5-6D	10.8	2⅞	6-8C	11.9	3½	7-9G	15.6	4	8-12G	22.5	4⅝			
4-5E	10.6	1¾	5-6E	11.5	2⅝	6-8D	12.6	3¾	7-10E	16.5	4⅜	8-12H	23.4	5⅛			
4-6B	9.7	1⅞	5-7C	10.8	2⅝	6-8E	13.3	3½	7-10F	17.1	4⅜	8-12J	25.2	4⅝			
4-6C	10.1	1⅝	5-7D	11.6	2⅞	6-8F	13.9	3½	7-10G	17.7	3⅞	8-12K	26.0	4⅛			
4-6D	10.8	1⅞	5-7E	12.2	2⅝	6-8G	14.5	3	7-10H	18.6	4⅜	9-11F	19.4	6¼			

MATERIAL FOR JOIST MARKS

Diam's Bot. Chord & Web			Top Chords	
Mark	Bot. Chord	Web	Mark	2 Angles
1	2— ¾	7/16	A	1¼x1¼x⅛
2	2—15/16	7/16	B	1¾x1¼x⅛
3	2— ⅞	7/16	C	2 x1½x⅛
4	2—15/16	½	D	1¾x1¼x5/16
5	2—1	½	E	2 x1½x5/16
6	2—1 1/16	9/16	F	2½x1½x5/16
7	2—1⅛	9/16	G	2½x2 x5/16
8	2—1 3/16	5/8	H	2½x1½x¼
9	2—1¼	11/16	J	3 x2 x¼
10	2—1⅜	¾	K	3 x2½x¼
11	2—1½	13/16	L	3½x2½x¼
12	2—1⅝	⅞		
13	2—1¾	⅞		

Example 6-7C indicates H = 6¼" B.C. = 2-1⅛" rods Web = 1-9/16" rod Top Chord = 2 Angles 2x1½x⅛



TYPICAL FLOOR SECTION

STRUCTURAL AEROCRETE IN SHORT SPAN CONSTRUCTION

Structural Aerocrete is a highly satisfactory and suitable material for so-called Short Span Construction. That is to say, for spans up to 8 ft. between structural steel framing, as illustrated in the attached sketch. The thickness of the slab is generally 4″, the reinforcement consisting of welded wire fabric.

A SPEEDY AND ECONOMICAL FLOOR SYSTEM

Construction of this type is extremely adaptable to the various conditions of design that occur in practice. It is, in addition, one of the most economical types of fireproof systems to install. It is speedy to erect, and as the forms are hung from the structural steel, the work goes forward rapidly without interfering with the progress or co-ordination of the other trades.

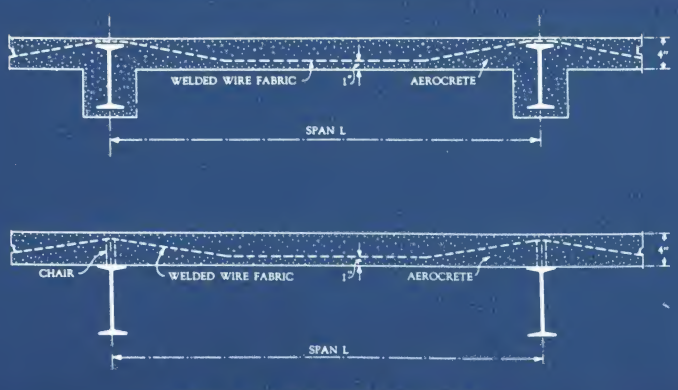
AEROCRETE IS EXCEPTIONALLY SUITED TO THIS CONSTRUCTION

Aerocrete is particularly suited for use in this type of floor system. Its natural plasticity insures the filling of the forms surrounding the structural steel. Its cellular structure provides increased fire resistance. On account of the relatively light weight of the Aerocrete, a reduction in the dead load of the floor slabs can be effected. For buildings designed for human occupancy, this saving in dead load will usually be reflected in a considerable reduction in the structural steel, and in the foundation costs. For such loadings, the load-bearing capacity of structural Aerocrete has been thoroughly tested over the past ten years in the field. At the bottom of Page 3 is shown a test slab supporting a superimposed load of 900 lbs. per sq. ft. This test was made in 1929 for the Building Department of New York City under the supervision of Columbia University.

NINE YEARS OF SUCCESSFUL INSTALLATIONS

The first major installation of Aerocrete Short Span Arches was made in 1928 in the six top stories of the top addition of the Bethlehem Steel Company's office building at Bethlehem, Pa. The original design of the building permitted an addition of only four stories, but by using Aerocrete a total of six badly needed floors was added. Since that time, nine years ago, a large number of installations have been made, some of which are illustrated herewith. A full list will be gladly sent to anyone interested upon request.

Pan American's Thoroughly Modern Air Station at Miami, Florida, Used Aerocrete in the Roof as Permanent Insulation Against the Tropical Sun and the Moist Climate



TYPICAL SLAB CONSTRUCTION

STYLES OF WELDED WIRE FABRIC FOR VARIOUS LOADS AND SPANS

AEROCRETE 80 lbs. per cu. ft.

Ult. Stress in Compression		800 lbs./sq. in.
Working Stress—Aerocrete		300 lbs./sq. in.
	Wire	18,000 lbs./sq. in.
	Shear	17 lbs./sq. in.
Computations	Moment	= wL x L ÷ 12
	Shear	= wL ÷ 2bjd

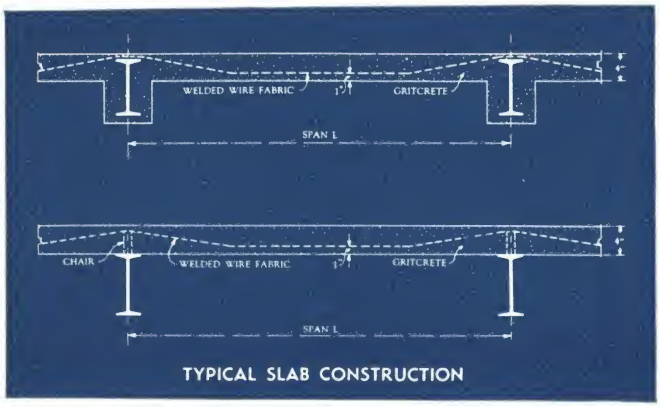
w \ L	5′-0″	5′-6″	6′-0″	6′-6″	7′-0″	7′-6″	8′-0″	
80#/□′	4″x12″ #8 & #12	4″x12″ #8 & #12	4″x12″ #8 & #12	4″x16″ #7 & #11	4″x16″ #7 & #11	4″x16″ #6 & #10	4″x16″ #5 & #10	4″ Slab
100#/□′	4″x12″ #8 & #12	4″x12″ #8 & #12	4″x16″ #7 & #11	3″x16″ #8 & #12	3″x16″ #7 & #11	3″x16″ #6 & #10	3″x16″ #5 & #10	
120#/□′	4″x12″ #8 & #12	4″x16″ #7 & #11	3″x16″ #8 & #12	3″x16″ #7 & #11	3″x16″ #6 & #10	3″x16″ #5 & #10	2″x16″ #6 & #10	
140#/□′	4″x12″ #8 & #12	3″x16″ #8 & #12	3″x16″ #7 & #11	3″x16″ #6 & #10	3″x16″ #5 & #10	2″x16″ #6 & #10	3″x16″ #4 & #9	4½″ Slab
160#/□′	4″x16″ #7 & #11	3″x16″ #7 & #11	3″x16″ #6 & #10	3″x16″ #5 & #10	2″x16″ #6 & #10	3″x16″ #4 & #9	3″x16″ #3 & #8	
180#/□′	3″x16″ #8 & #12	4″x16″ #5 & #10	2″x16″ #8 & #12	3″x16″ #4 & #9	2″x16″ #7 & #11	2″x16″ #6 & #10	2″x16″ #4 & #9	

AEROCRETE 60 lbs. per cu. ft.

Ult. Stress in Compression		650 lbs./sq. in.
Working Stress—Aerocrete		250 lbs./sq. in.
	Wire	18,000 lbs./sq. in.
	Shear	17 lbs./sq. in.
Computations	Moment	= wL x L ÷ 12
	Shear	= wL ÷ 2bjd

w \ L	5′-0″	5′-6″	6′-0″	6′-6″	7′-0″	7′-6″	8′-0″	
80#/□′	4″x12″ #8 & #12	4″x12″ #8 & #12	4″x12″ #8 & #12	4″x12″ #8 & #12	4″x16″ #7 & #11	4″x16″ #6 & #10	3″x16″ #7 & #11	4″ Slab
100#/□′	4″x12″ #8 & #12	4″x12″ #8 & #12	4″x16″ #7 & #11	3″x16″ #8 & #12	3″x16″ #7 & #11	2″x16″ #8 & #12	3″x16″ #4 & #9	
120#/□′	4″x12″ #8 & #12	4″x16″ #7 & #11	3″x16″ #8 & #12	3″x16″ #7 & #11	2″x16″ #8 & #12	2″x16″ #8 & #12	3″x16″ #5 & #10	4½″ Slab
140#/□′	4″x12″ #8 & #12	3″x16″ #8 & #12	3″x16″ #7 & #11	2″x16″ #8 & #12	2″x16″ #8 & #12	3″x16″ #5 & #10	2″x16″ #6 & #10	
160#/□′	4″x16″ #7 & #11	4″x16″ #6 & #10	3″x16″ #6 & #10	2″x16″ #8 & #12	3″x16″ #5 & #10	2″x16″ #6 & #10	3″x16″ #4 & #9	5″ Slab
180#/□′	3″x16″ #8 & #12	3″x16″ #7 & #11	2″x16″ #7 & #11	3″x16″ #5 & #10	2″x16 ″ #6 & #10	3″x16″ #4 & #9	2″x16″ #6 & #10	

GRITCRETE IN SHORT SPAN CONSTRUCTION



TYPICAL SLAB CONSTRUCTION

A NEW STRUCTURAL MATERIAL

Gritcrete is a new material developed by the Aerocrete Corporation of America during the year 1936. It has been designed to compete with and take the place of structural 1:2:5 cinder concrete. No cinders, however, are used in its production. Gritcrete consists of a mixture of portland cement and substantially 5½ parts aggregate. The aggregate is composed of one part concrete sand to one and a half parts pea gravel. This aggregate comes to the job ready-mixed, as there is no danger of segregation of a mixture of sand and pea gravel in these proportions.

A PREFERRED MATERIAL FOR ARCHES

Gritcrete is a superior material for so-called short span arches and for fireproofing the structural steel. It can be specified for use wherever sand and gravel are available. With a water-cement ratio of 7 gallons to the bag of cement, a slump of from eight to nine inches is obtainable, and this excellent factor of workability insures a highly economical placing cost.

THE NEW FEDERAL TRADE COMMISSION BUILDING

Gritcrete uses the well-proven Aerocrete principle in the production of a concrete to weigh 108 lbs. per cubic foot. The first installation on a large scale was made early in 1937 in the new building to house the Federal Trade Commission. The Procurement Division of the Treasury Department specified a concrete to weigh 108 lbs. per cu. ft. with an ultimate strength of 800 lbs. per sq. in., as well as a load test on a completed panel. Gritcrete was selected by the contractor, McCloskey & Company, of Philadelphia, to whom we are pleased to refer anyone interested in how Gritcrete worked out on this project.

THE NEW CHRONIC DISEASE HOSPITAL, NEW YORK CITY

The New Chronic Disease Hospital being erected on Welfare Island was designed by Butler & Kohn, York & Sawyer, Architects; H. G. Balcom & Associates, Consulting Engineers. In direct competition with cinder concrete, Gritcrete was selected due to its superior features. Tests, before and during construction, were made for the New York City Building Department, under the supervision of the Department of Hospitals, and the results obtained are matters of record. Further information concerning the serviceability and utility of Gritcrete can be obtained from the General Contractors, Cauldwell-Wingate Company or from the Concrete Sub-contractor, the Knickerbocker Fireproof Arch Company, both of New York City.

We take considerable pride in the ready acceptance that has been given to this new material. We will be pleased to supply those interested with any further data required in addition to the tables and details shown herewith.

STYLES OF WELDED WIRE FABRIC FOR VARIOUS LOADS AND SPANS

BASED ON FORMULAS OF 1938 CODE OF NEW YORK CITY

Weight ..... 108 lbs./cu. ft.
Ult. Stress in Compression ..... 800 lbs./sq. in.
Computations w = 3 x As x 20,000 ÷ L x L

w \ L	5′-0″	5′-6″	6′-0″	6′-6″	7′-0″	7′-6″	8′-0″	
80#/□′	4″x12″ #8 & #12	4″x12″ #8 & #12	4″x12″ #8 & #12	4″x12″ #8 & #12	4″x16″ #7 & #11	3″x16″ #8 & #12	4″x16″ #6 & #10	4″ Slab
100#/□′	4″x12″ #8 & #12	4″x12″ #8 & #12	4″x12″ #8 & #12	4″x16″ #7 & #11	4″x16″ #6 & #10	3″x16″ #7 & #11	3″x16″ #6 &#10	
120#/□′	4″x12″ #8 & #12	4″x12″ #8 & #12	4″x16″ #7 & #11	4″x16″ #6 & #10	3″x16″ #7 & #11	3″x16″ #6 & #10	3″x16″ #5 & #10	
140#/□′	4″x12″ #8 & #12	4″x16″ #7 & #11	4″x16″ #6 & #10	4″x16″ #5 & #10	3″x16″ #6 & #10	3″x16″ #5 & #10	3″x16″ #4 & #9	
160#/□′	4″x16″ #7 & #11	3″x16″ #8 & #12	3″x16″ #7 & #11	3″x16″ #6 & #10	3″x16″ #5 & #10	3″x16″ #4 & #9	2″x16″ #6 & #10	
180#/□′	3″x16″ #8 & #12	3″x16″ #7 & #11	3″x16″ #6 & #10	3″x16″ #5 & #10	2″x16″ #7 & #11	2″x16″ #6 & #10	2″x16″ #5 & #10	

BASED ON REINFORCED CONCRETE FORMULAS

Weight ..... 108 lbs./cu. ft.
Ult. Stress in Compression ..... 800 lbs./sq. in.
Working Stress—Gritcrete ..... 300 lbs./sq. in.
Wire ..... 18,000 lbs./sq. in.
Shear ..... 30 lbs./sq. in.
Computations Moment = wL x L ÷ 12
Shear = wL ÷ 2bjd

w \ L	5′-0″	5′-6″	6′-0″	6′-6″	7′-0″	7′-6″	8′-0″	
80#/□′	4″x12″ #8 & #12	4″x12″ #8 & #12	4″x12″ #8 & #12	4″x12″ #8 & #12	4″x16″ #7 & #11	4″x16″ #6 & #10	3″x16″ #7 & #11	4″ Slab
100#/□′	4″x12″ #8 & #12	4″x12″ #8 & #12	4″x16″ #7 & #11	3″x16″ #8 & #12	3″x16″ #7 & #11	3″x16″ #6 & #10	2″x16″ #6 & #10	
120#/□′	4″x12″ #8 & #12	4″x16″ #7 & #11	3″x16″ #8 & #12	3″x16″ #7 & #11	3″x16″ #5 & #10	2″x16″ #5 & #10	2″x16″ #7 & #11	4½″ Slab
140#/□′	4″x12″ #8 & #12	3″x16″ #8 & #12	3″x16″ #7 & #11	3″x16″ #5 & #10	2″x16″ #4 & #9	2″x16″ #7 & #11	2″x16″ #4 & #9	
160#/□′	4″x16″ #7 & #11	4″x16″ #6 & #10	3″x16″ #6 & #10	2″x16″ #5 & #10	2″x16″ #7 & #11	2″x16″ #4 & #9	2″x16″ #6 & #10	5″ Slab
180#/□′	3″x16″ #8 & #12	4″x16″ #5 & #10	2″x16″ #6 & #10	2″x16″ #7 & #11	2″x16″ #5 & #10	2″x16″ #6 & #10	2″x16″ #4 & #9	


New Chronic Disease Hospital, Welfare Island, New York City

ROOF CONSTRUCTION

Aerocrete is an ideal material for structural roof or roof fill. Its low weight results in a saving of structural steel while its excellent heat insulating qualities obviate the need for including expensive impermanent insulation materials. Aerocrete is not only permanent, but moisture and vermin proof. It gives an excellent base for built-up roofing.

For a flat roof, Aerocrete poured-in-place on forms is generally to be recommended in accordance with one of the three designs outlined herein. For a sloping roof, precast Aerocrete slabs should be specified. They give a smooth under-surface for plastering.

Aerocrete is one of the cheapest kinds of permanent roof for heated buildings. In specifying Aerocrete, the Architect is specifying structural roof and insulation at the same time.

U. S. P. O. Annex, 32nd Street & Ninth Avenue, New York City
Roof:-Poured-in-Place Structural Aerocrete
Architects: McKim, Mead & White
Builders: James Stewart & Co.

SOUNDPROOF PARTITION SLABS

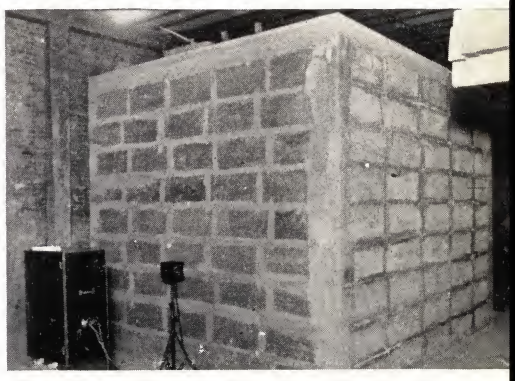
We manufacture Aerocrete partition blocks for use in apartment houses, hotels, hospitals, and other buildings in which good sound insulation is a factor of primary importance. Architects, owners, and loaning institutions are all paying increasing attention to this important factor in building construction.

Aerocrete is highly resistant to sound. At 1000 sound cycles per second, a 4-in. unplastered Aerocrete partition block showed a sound attenuation of 42 decibels. This resistance factor is equal to that of a double wall of 7-in. thickness consisting of materials principally used in the past.

Therefore a sound insulating partition of Aerocrete is more economical to erect. The architect or builder is also able to maintain standard thickness of partition walls, thereby saving valuable rentable space.

Aerocrete partition blocks are made in 3, 4 and 6-in. thicknesses. We will gladly submit a list of the large number of important buildings in which Aerocrete partition blocks have been used with the most satisfactory results.

As back-up blocks behind spandrels, Aerocrete partition blocks will reduce wall thickness for recessing radiators and give better heat insulation.



Test Room Built of Aerocrete Blocks. Over a Quarter of a Million Feet of Aerocrete Partition Blocks Were Installed in the National Broadcasting Studios in Rockefeller Center

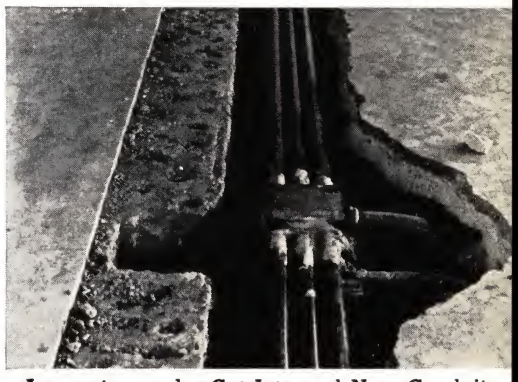
AEROCRETE FLOOR AND ROOF FILL

Dependent on the purpose for which it is used, Aerocrete fill is made in weights from 50 to 90 lbs. Like all Aerocrete, the fill is chemically pure, therefore no danger of corrosion is present when piping and conduits are embedded in the fill.

Compared to other kinds of fill, Aerocrete is considerably lighter. This saving in dead weight means a saving in structural steel and in foundations.

Aerocrete fill gives a more soundproof floor. When poured, the Aerocrete mass is quite fluid and fills easily every crevice in the floor around pipes, ducts, etc. This property makes Aerocrete a superior material for sleeper fill and also acts to restrain the telephoning of sounds along plumbing and heating pipes and structural members.

Aerocrete gives a monolithic job, highly soundproof and heat insulating, vermin proof and permanent.



Aerocrete can be Cut Into and New Conduits Placed With a Minimum of Delay and Inconvenience

AEROCRETE SPECIFICATIONS

I. AEROCRETE "L. S." FLOOR CONSTRUCTION

1) Structural floors shall consist of steel beams encased in light weight concrete reinforced with welded wire fabric as shown on the plans.
2) Where a satisfactory grade of hard coal cinders is available, the light weight concrete shall be composed of a mixture of portland cement, sand, and cinders, properly proportioned, and expanded by the action of Aerocrete Compound to weigh 60 lbs. per cubic foot. Otherwise the light weight concrete shall consist of a mixture of portland cement, and concrete sand, properly proportioned, and expanded by the action of Aerocrete Compound to weigh 70 lbs. per cu. ft.
3) The proportioning of the materials making up the light weight concrete and the installation thereof shall be done at the direction and under the supervision of a qualified representative of the Aerocrete Corporation of America.

II. AEROCRETE "F. S." FLOOR CONSTRUCTION

1) Structural floors shall consist of open truss joists, the top chord of which shall be encased in a slab of 1:2:4 stone concrete, and the bottom chord and web in light weight concrete, reinforced with reinforcing rods, all as shown on the plans.
2) Where a satisfactory grade of hard coal cinders is available, the light weight concrete shall be composed of a mixture of portland cement, sand, and cinders, properly proportioned, and expanded by the action of Aerocrete Compound to weigh 60 lbs. per cubic foot. Otherwise the light weight concrete shall consist of a mixture of portland cement, and concrete sand, properly proportioned, and expanded by the action of Aerocrete Compound to weigh 70 lbs. per cubic foot.
3) The proportioning of the materials making up the light weight concrete and the installation thereof shall be done at the direction and under the supervision of a qualified representative of the Aerocrete Corporation of America.

III. STRUCTURAL AEROCRETE SHORT SPAN CONSTRUCTION

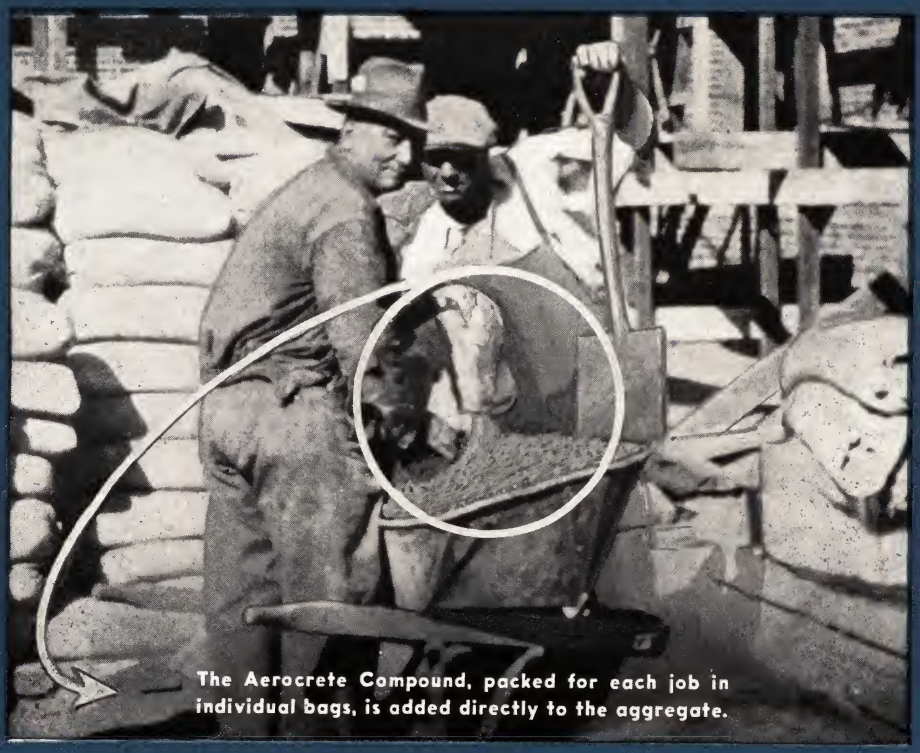
1) Structural arches and fireproofing of beams and girders shall consist of structural light weight concrete reinforced with welded wire fabric, as shown on the plans.
2) Where a satisfactory grade of hard coal cinders is available, the light weight concrete shall be composed of a mixture of portland cement, sand, and cinders, properly proportioned and expanded by the action of Aerocrete Compound to weigh 60 lbs. per cubic foot. Otherwise the light weight concrete shall consist of a mixture of portland cement, and concrete sand, properly proportioned, and expanded by the action of Aerocrete Compound to weigh 80 lbs. per cubic foot.
3) The proportioning of the materials making up the light weight concrete and the installation thereof shall be done at the direction and under the supervision of a qualified representative of the Aerocrete corporation of America.

IV. GRITCRETE SHORT SPAN CONSTRUCTION

1) Structural arches and fireproofing of beams and girders shall consist of Gritcrete reinforced with welded wire fabric as shown on the plans.
2) The Gritcrete shall consist of a mixture of portland cement, concrete sand, and pea gravel sized up to 3/8", properly proportioned, and expanded by the action of Gritcrete Compound to weigh 108 lbs. per cubic foot.
3) The proportioning of the materials making up the Gritcrete, and the installation thereof shall be done under the direction of and under the supervision of a qualified representative of the Aerocrete Corporation of America.

V. AEROCRETE FLOOR AND ROOF FILL

1) Floor fill shall consist of light weight concrete weighing lbs. per cubic foot. (Note: any suitable weight from 50 to 90 lbs. per cubic foot may be selected. In general, the heavier weights are somewhat more economical than the lighter.)
2) The light weight concrete shall be composed of a mixture of portland cement and properly graded sand, proportioned as directed, and expanded by the action of Aerocrete Compound to produce the weight specified.
3) The proportioning of the materials making up the light weight concrete and the installation thereof shall be done at the direction of and under the supervision of a qualified representative of the Aerocrete Corporation of America.



The Aerocrete Compound, packed for each job in individual bags, is added directly to the aggregate.

AEROCRETE
LIGHTWEIGHT CONCRETE